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THIS IS UNEVALUATED INFORMATION

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1. The following research was in progress in the Physical Chemistry Institute at the Eoetvoes Lorand University of

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(a) Catalytic synthesis of ethylamines from ethylalcohol and ammonia, first with silica gel as catalyzer, then Al_2O_3, and finally a mixture of the two. The purpose of this research was to develop an economical industrial process to produce mainly diethylamine and to study the mechanism of the reaction. Synthesia was made on the basis of foreign patents.

(b) Investigation of corrosion in iron, copper, nickel and their alloys in the presence of ethylbenzol, nitrotoluol, and nitrobenzol. The aim was to develop a method of investigation which would give a sensitive and quick method of recognition of the appearance of corrosion and to follow the course of the corrosion process. This may be done with electronomicroscopic photography, and perhaps by measuring the polarization capacity of the metal surface. This involved searching for additional information on methods of stopping the corrosion, perhaps with a preliminary surface treatment. Two research assistants and one laboratory assistant worked on this problem. The research assistants were Mrs Yanos Novak nee Vern Ligeti,

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50X1 and Miss Magda Sprung

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(c) Measurement of polarization capacity. The aim was to find a method to accurately determine the polarization capacity and in this connection an absolute "measurement" of metal surfaces, which involved examination of adsorption as well as investigation of corrosion. This research was done by two research assistants and a part time laboratory assistant. The research assistants were Jozsef Devay, and Mrs Bela Beress, nee Maria Triznyai.

(d) Anodic polishing of copper and iron. The aim was to develop an economical industrial process, if possible by use of domestic materials (acids), and the study of the reaction mechanism of electrode processes. This research was done by one adjunktus (associate professor), and two research assistants, Mrs Andras Szokoby, nee Dr Ilona Botka, Endre Barla, Mrs Karoby Urhegyi, nee Marta Vanyek

(e) Examination of the mechanism of the migration of postive hydrogen ion based on the Grotthus theory; measurement of transport number of H^+ ions in an alcohol-water mixture of different concentrations by the moving boundary method (also in absolute alcohol medium). Further measurements were planned using glycerin-water and other water-compound (containing HO-group) mixtures. Measurements of the conductivity and viscosity paralleled the transport number measurements. Two research assistants and one laboratory assistant carried out this research; Lajos Majtenyi and Miss Antonia Reich The measurements were analogous from the viewpoint of measurement technique with those carried out in the laboratory directed by A R Gordon in Toronto, Canada.

(f) Diffusion tests, which since 1937 had been done by the diaphragm method, were being continued. These tests were done by Andor Hunyar in 1938, by Eva Pogany in 1943, by Tereze Schandl in 1948, and in 1950 in diffusion of sugar. The dissertation of Klara Arkosi, 1946, and Alajos Vali, 1945, dealt with the distribution of pores in sintered glass filters and their transmissability. Hildegard Hartmann, in March 1950, measured the change of the diffusion constant of different electrolytes as a function of the electrolyte concentration (analogous to the method used to attain results published by R H Stokes in the "Journal of the American Chemical Society", May 1950).

(g) Tests in selective catalytic hydrogenation in the presence of Pd as catalyzer on the surface of $BaSO_4$. Experiments were made to see whether a catalyzer of identical properties could be reproduced. This included the study of the mechanism of reaction, the study of the dependence of the catalytic effect on the solvent, and the pH, and the study of the effect of the dispersion grade of the catalyzer. Research was done by Kroly Zimmer, research assistant and Laszlo Kiss, research assistant, and one laboratory assistant.

(h) Examination of gas absorption in solutions in initial stages. Research was done by Dr Elvina Kugler, research assistant.

(i) Determination of surface by means of gas adsorption measurements. This experiment was done by the method of Brounauer-Emmett. The original aim of the examination was the absolute surface determination of platinum black, but the method was not sensitive

enough for this. This method can be used for the surface measurement of powder catalyzers. Determination on this basis of dispersion makes it possible to compare the results with other surface measurements. Research was done by Mrs Ferenc Nagy, nee Agnes Sipos, 50X1

(j) Production of silica gel of different dispersion grades which was reproducible for catalytic purposes, and which could be used industrially. Research was done by Dr Mrs Mihaly Mincsev, 50X1 dozent, and one laboratory assistant.

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